12 Summary and conclusions

This book tells the story of the role of services in Britain's productivity performance between the middle of the nineteenth century and the end of the twentieth century, with particular emphasis on how Britain compared with the United States and Germany. This is a vital missing part of most accounts of comparative productivity performance over the long run, since the overtaking of Britain by the United States and Germany cannot be explained by changing comparative productivity performance in industry, which has been surprisingly stationary over the last century and a half (Broadberry, 1997a, 1998).

A central part of the story involves the 'industrialisation' of market services, and the extent to which Britain was able to adapt to the technological and organisational changes that underpinned it, many of which originated in the United States. This involved the transition from customised, low-volume, high-margin business organised on the basis of networks to standardised, high-volume, low-margin business with hierarchical management. To the extent that some services remained unsuitable for industrialisation, Britain was able to retain a strong productivity position, even relative to the United States, and this helps to explain the moderate nature of Britain's relative economic decline. Nevertheless, Britain had already been overtaken by the United States in services, as in the economy as a whole, by the 1890s.

To the extent that conditions were even less favourable to the industrialisation of services in Germany before World War II, largely as a result of the much larger agricultural sector and the associated lower levels of urbanisation, Britain was able to retain a productivity lead over Germany. However, by the 1960s Britain had fallen behind Germany and many other western European countries, as well as the United States. Only with the information and communications technology revolution of the 1990s, with its return to customised service provision and more decentralised organisation, has Britain begun to narrow the productivity gap with Germany and other European countries in market services.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 17 Nov 2026 at 01:51:31, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/CBO9780511495748.013

12.1 Measuring comparative productivity performance

Part I of the book is concerned with the measurement of comparative productivity performance, at the level of major sectors as well as for the economy as a whole. At the level of the aggregate economy, Britain had higher labour productivity than either the United States or Germany in the mid-nineteenth century, but was overtaken by the United States in the 1890s. The United States reached its peak labour productivity lead over both Britain and Germany in the early 1950s. Since then both countries have narrowed the productivity gap with the United States, but Germany did so more rapidly and overtook Britain in the 1960s. Germany continued to pull ahead of Britain until the 1980s. Only during the 1990s has Britain decisively narrowed the productivity gap with Germany and other western European countries.

Breaking the aggregate productivity performance down into the three main sectors of agriculture, industry and services, it is possible to show that services played a key role in these changing patterns of comparative aggregate productivity performance. Whereas comparative productivity in industry over the period 1870 to 1990 was stationary in both the US/UK and Germany/UK cases, comparative productivity trends in services mirrored trends in the economy as a whole. The main contribution of agriculture was through differential changes in the share of the labour force engaged in agriculture in the three countries. Since agriculture was a low-value-added sector, aggregate productivity was boosted as its share of the labour force declined. Agriculture already accounted for a precociously low share of employment in Britain by the mid-nineteenth century, so one way in which the United States and Germany were able to catch up on Britain was through the later shrinking of agricultural employment.

It is also possible to decompose comparative productivity trends in services into transport and communications, distribution, finance and other private services and government. In the key market services, British performance tended to be worst in transport and communications, best in finance, and somewhere in between in distribution. Part I is rounded off by the presentation of a complete sectoral data set for the United Kingdom, United States and Germany covering the period 1870 to 1990. Although the emphasis in the book is on comparative levels of productivity, the presentation of the data on this basis is complemented by an analysis of sectoral productivity growth rates in each country. This serves as a reminder that Britain continued to achieve substantial growth during its long period of relative economic decline, and has remained decisively part of the rich world.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 17 Nov 2026 at 01:51:31, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/CBO9780511495748.013

12.2 Explaining comparative productivity performance

Part I of the book is about how, increasingly since the late nineteenth century, an economy could achieve high levels of aggregate labour productivity only by achieving high levels of labour productivity in services. Part II is about how, in turn, an economy was increasingly able to achieve high levels of labour productivity in services only by adopting a standardised, high-volume, low-margin approach to business, with hierarchical management. This approach to business, originating in the United States, replaced an earlier approach to business, based on the customised provision of low-volume, high-margin services, organised on the basis of networks. The transformation from the world of the 'counting house' to the world of the 'modern office' depended on technologies to improve information processing and communications. The adoption of these technologies in turn required sufficiently high levels of education and a willingness on the part of the labour force to accept the intensification of the labour process that the efficient utilisation of the new technologies required.

The new approach was first developed on the railways, before spreading rapidly to other parts of the transport and communications sector, and more slowly to distribution and finance. Factors delaying the increase in productivity in distribution included the limits to the degree of centralisation and standardisation that consumers found acceptable before the rise of mass personal transport, and restraints on competition which supported small retailers. The rise of a high-volume, impersonal, standardised approach in finance was also limited by regulatory restrictions on big business, although difficulties of overcoming asymmetric information problems in an automated, standardised business environment also played a role. The work of Bakker (2001) suggests that there is scope for applying this approach to other personal services such as entertainment, which also went through a process of 'industrialisation' during the twentieth century.

If Britain was slower than the United States to industrialise its service sector, Germany was slower still. The crucial factor before World War II was the much greater share of the labour force in Germany tied up in an agricultural sector characterised by very low productivity. With much of the population living in rural areas, and with relatively low per capita incomes, a high-volume service sector was inevitably slow to develop. The low degree of specialisation in the German service sector before World War II was reinforced by its domestic orientation compared with the highly cosmopolitan British service sector, reaping external economies of scale. The backwardness of the German service sector (with

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 17 Nov 2026 at 01:51:31, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/CBO9780511495748.013

one or two notable exceptions) changed only after World War II with the sharp decline in the share of the labour force in agriculture.

The rest of Part II looks empirically at the proximate and more fundamental causes of the productivity differences identified in Part I. The key proximate sources of productivity differences are human and physical capital, and the key fundamental causes are competition and the institutional framework. Physical capital explains some of the labour productivity gaps, and data on sales of office machinery suggest that this was a crucial aspect of investment in high-volume service provision.

In human capital, it is important to distinguish between formal education and vocational training. In formal education, the United States had a significant advantage over Britain in primary education during the nineteenth century, in secondary education during the first half of the twentieth century, and in higher education during the second half of the twentieth century. Germany also lagged behind the United States in the provision of secondary education and higher education during the twentieth century. However, the apparent British and German disadvantage in formal education was offset by a much greater provision of vocational training than in the United States. Here, however, there was an important difference between Britain and Germany, with Britain leading in the provision of higher-level vocational training through professional associations, and Germany leading in the provision of intermediate-level training through apprenticeships. Putting together the formal education and the vocational training, it is likely that Britain suffered little human capital disadvantage relative to either Germany or the United States before World War II, especially in services. After World War II, however, any higher-level advantage that Britain had enjoyed from professional training was offset by the spread of mass higher education in the United States. For the comparison between Britain and Germany, the crucial development was the spread of intermediate-level vocational qualifications in German services, dramatically reducing the proportion of the workforce with 'low skills' and leading to the emergence of a substantial German human capital advantage by the 1970s.

Although the proximate sources of productivity differences are revealing, they leave unanswered the reasons for the different levels of physical and human capital accumulation. For a more fundamental explanation of these differences, it is necessary to consider the institutional framework. Whilst a full explanation of the evolution of the different institutional frameworks in Britain, the United States and Germany is beyond the scope of this book, it is possible to see a number of ways in which the competitive environment has affected productivity outcomes

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 17 Nov 2026 at 01:51:31, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/CBO9780511495748.013

in the three countries. First, throughout the period studied here services have been more sheltered from competition than industry. British manufacturers that failed to keep up with productivity growth abroad were ultimately replaced by imports, but this could not happen to anything like the same extent in services. Hence, poor performance by service sector firms tends to show up in the productivity figures, while poor performance by industrial firms tends to show up in the sectoral composition of economic activity.

Second, the relative size of sectors has been affected more generally by different policy stances on competition in the three countries, with important implications for comparative productivity performance. Before World War II German tariff protection was designed to slow down the decline of agriculture and to promote the development of heavy industry. With unproductive workers retained in low-value-added agriculture, overall per capita incomes in Germany were depressed, and the concentration of the population in large cities was slowed down, all of which acted to limit the market for 'industrialised' services.

Third, the different institutional frameworks in the three countries affected the incentives to accumulate and innovate more generally. Since the emergence of big business in the late nineteenth century, US governments have usually taken a pro-competition stance, while British and German governments have been more equivocal. Before World War II Germany accepted cartels and British policy could at times be described more accurately as pro-trust rather than anti-trust. After 1945 'corporatist' post-war settlements in both Britain and Germany contrasted with the continuation of a more competitive institutional framework in the United States. However, the German framework was more centralised than the British, providing stronger incentives for the accumulation of both human and physical capital. For human capital, Germany's more centralised system was able to solve the free-rider problem of the poaching of skilled workers, spreading the apprenticeship system from industry into services. By contrast, Britain's apprenticeship system declined even in industry, where it had previously been strong. Although a similar poaching problem existed in the United States, it was less serious there because of the greater reliance on general education rather than firm-provided vocational training. For physical capital, greater centralisation made it easier for German trade unions and employers' organisations to deliver agreements involving wage restraint in return for investment in new technology than in Britain's fragmented system of industrial relations.

After Britain had fallen decisively behind most western European nations in terms of labour productivity levels during the 1970s, the

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 17 Nov 2026 at 01:51:31, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/CBO9780511495748.013

1980s saw a substantial movement away from the corporatist institutional framework, with a strengthening of anti-trust policy, privatisation and deregulation across much of the service sector, and substantial restrictions on trade union immunities. Britain's relative decline was stemmed, though not yet reversed. However, with the return to a more customised approach to service provision during the 1990s, based on the ICT revolution, Britain at last began to narrow the productivity gap with Germany and with many other western European countries in services and in the economy as a whole. With the new technology coming mainly from the United States, however, the Anglo-American productivity gap has remained substantial.

12.3 Reassessing the performance of British market services

Part III provides a reassessment of the performance of British market services since the mid-nineteenth century, in the light of the trends in productivity performance identified in Part I and the general framework of the industrialisation of services outlined in Part II. Chapter 8 begins with British commerce between 1850 and 1914. Although labour productivity grew more rapidly in the United States and Germany than in Britain in services and in the economy as a whole, this largely reflected catching up. Since services clearly made a very positive contribution to the British balance of payments, and the City of London dominated world trade and payments, and since productivity levels remained high, this period can be seen as the 'golden age' of British commerce.

However, Britain's position was already being threatened by the industrialisation of services that was beginning to occur in the United States, with the movement away from customised, low-volume, high-margin business organised on the basis of networks to standardised, high-volume, low-margin business organised on the basis of hierarchy. The process began on the railways and spread rapidly to other parts of the transport and communications sector, but more slowly to distribution and finance. British performance was better in the sectors which continued to be more suited to the network form of organisation. To the extent that British networks failed to adapt to the threat from more hierarchically organised overseas competitors, it became necessary to restrict competition. This was achieved by a growing focus on imperial integration and the cartelisation of markets. The worst British productivity performance occurred on the railways and in telecommunications, where large-scale hierarchical organisation was difficult to avoid. The best British performance was registered in tramp shipping, wholesale

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 17 Nov 2026 at 01:51:31, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/CBO9780511495748.013

distribution, international banking and non-life insurance, where the network form of organisation remained efficient.

Labour productivity growth in services was as rapid in Britain as in Germany during the period 1914 to 1950, but the United States now forged ahead decisively, especially in services suited to further industrialisation. Hence, the US labour productivity lead became substantial in transport and communications, but remained much smaller in distribution and finance. Indeed, with the much greater negative impact of the Great Depression on the US financial system, Britain temporarily regained the labour productivity lead in financial services during the 1930s. The disruption caused by the breakdown of the liberal international economic system between 1914 and 1950 may be expected to have had a greater impact on Britain than on the United States, which was more oriented towards its large domestic market, or on Germany, which was more protectionist. Nevertheless, the negative effects were to some extent offset by an increasing reliance on integration within the British Empire. However, this had some long-run costs, since the major empire countries would not be natural British markets in the more integrated world economy which emerged after World War II. Similarly, the strengthening of collusive behaviour and restrictive practices which occurred during the inter-war period may have helped to stem the falling price level, and hence to prevent rising real wages and unemployment, but it also made adjustment to changed circumstances after World War II more difficult, by making the economy less flexible.

The period 1950 to 1990 saw the completion of the industrialisation process in services. Britain was slower than Germany and most other western European countries in closing the labour productivity gap with the United States, which peaked in the early 1950s in services as well as in the economy as a whole. As a result, Britain fell behind Germany during the 1960s. Both Britain and Germany adopted corporatist institutional frameworks after World War II, but the more centralised German system provided better incentives for the accumulation of human and physical capital, by solving the free-rider problem of poaching skilled workers and by facilitating a commitment to bargains involving wage restraint in return for investment in modern technology. As Britain's productivity performance continued to lag behind Germany's during the 1970s, pressures on the post-war corporatist system mounted, and during the 1980s Britain moved strongly towards a more competitive institutional framework with the privatisation and deregulation of many services, a strengthening of anti-trust policy, and restrictions on trade union immunities. Britain's relative economic decline was

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 17 Nov 2026 at 01:51:31, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/CBO9780511495748.013

stemmed, but a reversal did not come before the technological changes of the 1990s. During the period 1950 to 1990 Britain's worst productivity performance in services occurred in large-scale, hierarchically organised sectors such as the railways, while the best performance was in sectors that remained more suitable for organisation on the basis of networks, such as parts of the financial service sector.

During the 1990s technological trends, which had previously favoured standardisation and large hierarchical organisation, now moved in favour of a greater degree of customisation and networks. The ICT revolution of the 1990s has, nevertheless, preserved the high volume and high productivity of industrialised services. Of course, the new technology has been easier to apply in some sectors than in others, as with the earlier industrialisation of services. However, the general trend has been an improvement in Britain's productivity performance in services and in the economy as a whole, so that Britain has begun to catch up with continental European economies. With most of the new technology originating in the United States, however, Anglo-American productivity gaps have been slow to narrow.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 17 Nov 2026 at 01:51:31, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/CBO9780511495748.013